UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET, SW, SUITE 23T85
ATLANTA, GEORGIA 30303-8931

April 26, 2007

Tennessee Valley Authority
ATTN: Mr. Preston D. Swafford, Acting
Chief Nuclear Officer and
Executive Vice President
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000327/2007002 AND 05000328/2007002 AND ANNUAL ASSESSMENT MEETING SUMMARY

Dear Mr. Swafford:

On March 31, 2007, the United States Nuclear Regulatory Commission (NRC) completed an inspection at your Sequoyah Nuclear Plant, Units 1 and 2. The enclosed integrated inspection report documents the inspection results, which were discussed on April 4 and April 17, 2007, with Mr. R. Douet and other members of your staff.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents one self-revealing finding of very low safety significance (Green). The finding was determined not to involve a violation of NRC requirements.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publically Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Malcolm T. Widmann, Chief
Reactor Projects Branch 6
Division of Reactor Projects

Docket Nos. 50-327, 50-328
License Nos. DPR-77, DPR-79

Enclosure: (See next page)

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Enclosure: Inspection Report 05000327/2007002 and 05000328/2007002
w/Attachment: Supplemental Information

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Report to P. D. Swafford from Malcolm T. Widmann dated April 26, 2007.

SUBJECT: SEQUOYAH NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000327/2007002 AND 05000328/2007002

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-327, 50-328
License Nos:	DPR-77, DPR-79
Report Nos:	05000327/2007002 and 05000328/2007002
Licensee:	Tennessee Valley Authority (TVA)
Facility:	Sequoyah Nuclear Plant
Location:	Sequoyah Access Road Soddy-Daisy, TN 37379
Dates:	January 1, 2007, - March 31, 2007
Inspectors:	S. Freeman, Senior Resident Inspector M. Speck, Resident Inspector R. Taylor, Reactor Inspector (Section 1R07)
Approved by:	M. Widmann, Chief Reactor Projects Branch 6 Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000327/2007-02, IR 05000328/2007-02; 01/01/2007 - 03/31/2007; Sequoyah Nuclear Plant, Units 1 & 2; Event followup.

The report covered a three-month period of inspection by resident inspectors and one regional inspector. One self-revealing Green finding was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Green. A green self-revealing finding was identified for failure to properly follow installation procedures when implementing a modification to the Unit 2 feedwater regulating valves. Inadequate clearance between the air tubing and fixed structures resulted in thermal movement detaching the air tubing from one valve which caused a reactor trip. The licensee entered the problem into their corrective action program, repaired the tubing, and revised conduct of modification procedures to strengthen the process.

The finding was more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone and resulted in an upset in plant stability by causing a reactor trip. While the finding resulted in an actual trip, the finding was determined to be of very low safety significance because it did not contribute to the likelihood of a loss of coolant accident, contribute to a loss of mitigation equipment functions, or increase the likelihood of a fire or flood. The cause of the finding was associated with the human performance and error prevention aspect of the human performance cross-cutting area because the involved craft, craft supervisor, and field engineer failed to verify and validate information by referring to installation procedures for the appropriate clearance. (Section 4OA3.1).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status:

Unit 1 operated at or near 100% rated thermal power (RTP) for the entire inspection period.

Unit 2 operated at or near 100% RTP until January 23, 2007, when a feedwater regulating valve failed closed, resulting in an automatic reactor trip on low steam generator level. Following repairs, the unit was restarted on January 24, 2007, and returned to 100% RTP on January 25, 2007. Unit 2 then remained at or near 100% RTP until March 13, 2007, when operators manually tripped it following a loss of speed control on Main Feedwater Pump 2A. Following repairs, the unit was restarted on March 14, 2007, and returned to 100% RTP on March 17, 2007. The unit remained at or near 100% RTP through the end of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors performed a partial walkdown of the following four systems to verify the operability of redundant or diverse trains and components when safety equipment was inoperable. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, walked down control system components and verified that selected breakers, valves, and support equipment were in the correct position to support system operation. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program. Documents reviewed are listed in the Attachment.

- Auxiliary Air Compressor A during B-Train Maintenance
- Unit 1 Emergency Core Cooling System A-Train during Safety Injection Pump 1B Outage
- Unit 1 Motor-Driven Auxiliary FeedWater (AFW) Pump Trains A and B during Turbine-Driven AFW Pump Maintenance and Testing
- Unit 1 Centrifugal Charging Pump Train B during Maintenance on Pump 1A

b. Findings

No findings of significance were identified.

.2 Semiannual Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete system walk-down of the Unit 2 Residual Heat Removal (RHR) system to verify proper equipment alignment, to identify any discrepancies that could impact the function of the system and increase risk, and to verify that the licensee properly identified and resolved equipment alignment problems that could cause events or impact the functional capability of the system.

The inspectors reviewed the Updated Final Safety Analysis Report (UFSAR), system procedures, system drawings, and system design documents to determine the correct lineup and then examined system components and their configuration to identify any discrepancies between the existing system equipment lineup and the correct lineup. In addition, the inspectors reviewed outstanding maintenance work requests and design issues on the system to determine whether any condition described in those work requests could adversely impact current system operability. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors conducted walkdowns of the nine areas listed below to assess the material condition and operational status of fire protection features. The inspectors verified that combustibles and ignition sources were controlled in accordance with the licensee's administrative procedures, fire detection and suppression equipment was available for use; that passive fire barriers were maintained in good material condition; and that compensatory measures for out-of-service, degraded, or inoperable fire protection equipment were implemented in accordance with the licensee's fire plan. Documents reviewed are listed in the Attachment to this report.

- Auxiliary Building Elevation 690 (Corridor)
- Control Building Elevation 669 (Mechanical Equipment Room, 250-VDC Battery and Battery Board Rooms)
- Control Building Elevation 706 (Cable Spreading Room)
- Control Building Elevation 732 (Mechanical Equipment Room and Relay Room)
- Control Building Elevation 685 (Auxiliary Instrument Rooms)
- Auxiliary Building Elevation 714 (Corridor)

- Emergency Diesel Generator Building
- Essential Raw Cooling Water Building
- Unit 1 and 2 Main Turbine Lube Oil Tanks

The inspectors observed the performance of the site fire brigade during an unannounced drill on January 11, 2007, to evaluate the readiness of the fire brigade to fight fires and to assess the drill against the requirements of the Sequoyah Nuclear Plant Fire Protection Report, Revision 20. The observed drill simulated a fire in the Solar Building, an onsite support building. Specifically, the inspectors reviewed the following aspects of the drill: use of protective clothing, use of breathing apparatus, proper use of fire hoses, and control of the drill scenario.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance

Biennial Inspection

a. Inspection Scope

The inspectors reviewed inspection records, preventative maintenance cleaning and inspection, corrective action program documents, and other documentation to ensure that heat exchanger (HX) deficiencies that could mask or degrade performance were identified and corrected. Procedures and records were also reviewed to verify that these were consistent with Generic Letter (GL) 89-13 licensee commitments, and industry guidelines. Risk- significant heat exchangers reviewed included the Component Cooling Water (CCW) HXs and auxiliary building space coolers.

The inspectors reviewed completed HX inspection and cleaning procedures, inspection frequency, and tube plugging information. The inspectors reviewed HX performance testing to verify that selected heat exchanger test methodology was consistent with Generic Letter (GL) 89-13 commitments; test conditions were appropriately considered; test or inspection criteria were appropriate and met; test frequency was appropriate; as-found results were appropriately dispositioned such that the final condition was acceptable; and test results considered test instrument inaccuracies and differences.

The inspectors also reviewed the general health of the Emergency Raw Cooling Water (ERCW) system via review of design basis documents, system health reports, inservice testing requirements, and discussions with the ERCW system engineer. These documents were reviewed to verify that the design basis was being maintained and to verify adequate ERCW system performance under current preventive maintenance, inspections, and test frequencies. The inspectors physically walked down accessible portions of the SW system including the ERCW intake structure, auxiliary building room coolers, and CCW HXs.

Problem Evaluation Reports (PERs) were reviewed for potential common cause problems and problems which could affect system performance to confirm that the licensee was entering problems into the corrective action program and initiating appropriate corrective actions.

In addition, the inspectors conducted a walkdown of selected HXs and major components for the ERCW system to assess general material condition and to identify any degraded conditions of selected components.

b. Findings

Introduction. Inspectors identified an issue related to the adequacy of licensee corrective actions related to the flow degradation events of the summer of 2006.

Description. From May 2006 to September 2006 there were numerous instances of ERCW flow reduction to several components. These flow reductions were attributed to clam shells being in the ERCW system piping. The licensee believed that increased system flow during molluskicide treatments flushed the shells though the system where they lodged at valve seats, tubesheets, and other areas of small diameter. During this period there were at least 12 PERs generated as a result of reduced or no-flow conditions to safety-related components. The components that were shown to have repeat flow blockage were the 1A RHR Pump Room Cooler, the 1A Containment Spray Pump Room Cooler, and the 1A CCP Room Cooler.

In September 2006, the licensee placed the system on their GL 91-18 (degraded but operable) list and instituted compensatory actions in order to monitor the flow to selected ERCW components during the molluskicide treatments. During a period of two days beginning on September 13, 2006, the licensee implemented a series of ERCW system flushes to remove clam shells. Subsequently, there were no other instances of flow reduction during the next two molluskicide treatments and the ERCW system compensatory actions were dropped and ERCW was removed from the GL 91-18 list in November of 2006.

On March 27, 2007, inspectors observed the Preventative Maintenance (PM) task associated with the inspection and cleaning of the A Train Electrical Board Room chiller. During this PM, several gallons of clam shells were found in the condenser and oil cooler temperature control valve of the Electrical Board Room chiller. The licensee performed an analysis of these clam shells and, based on their color and general physical appearance, concluded that they collected at the Electrical Board Room chiller during the September 2006 system flush. Despite the flow reduction through the chiller due to the interference of the clam shells, the A Train Electrical Board Room chiller remained operable during the period following the September system flush because it maintained a sufficient cooling margin. Chiller performance was also monitored and never approached operability limits.

Continued plant operation with clam shells in the ERCW system could lead to the inability of the system to perform its design basis functions. Clam shells in the ERCW

system have been a recurring issue; therefore, the adequacy of licensee corrective actions to correct this deficiency is unresolved pending completion of the next molluskicide treatment scheduled for May 2007.

Accordingly, this issue is left as an Unresolved Issue (URI) 05000327/2007002-01, Heat Sink Issues.

1R11 Licensed Operator Requalification Program

a. Inspection Scope

The inspectors observed as-left simulator training on January 26, 2007. The training involved a heater drain tank level control valve failure resulting in a plant runback followed by a primary-to-secondary leak which degraded into a steam generator tube rupture requiring a manual reactor trip and initiation of safety injection. Anomalies included a failure of the Emergency Diesel Generator 1A to automatically start, failure of the turbine-driven auxiliary feedwater pump to start, and failure of a manual reactor trip switch. The inspectors observed crew performance in terms of communications; ability to take timely and proper actions; prioritizing, interpreting and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high risk operator actions; oversight and direction provided by shift manager, including the ability to identify and implement appropriate Technical Specification (TS) actions; and group dynamics involved in crew performance. The inspectors also observed the evaluators' critique and reviewed simulator fidelity to verify that it matched actual plant response. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors reviewed the following three maintenance activities to verify the effectiveness of the activities in terms of: 1) appropriate work practices; 2) identifying and addressing common cause failures; 3) scoping in accordance with 10 CFR 50.65 (b); 4) characterizing reliability issues for performance; 5) trending key parameters for condition monitoring; 6) charging unavailability for performance; 7) classification in accordance with 10 CFR 50.65(a)(1) or (a)(2); 8) appropriateness of performance criteria for structure, system, or components (SSCs) and functions classified as (a)(2); and 9) appropriateness of goals and corrective actions for SSCs and functions classified as (a)(1). Documents reviewed are listed in the Attachment to this report.

- PER 119062, Increase in Main Control Room Temperature
- ESF Actuation System Train 1A Reliability

- Emergency Diesel Generator Reliability

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following seven activities to verify that the appropriate risk assessments were performed prior to removing equipment from service for maintenance. The inspectors verified that risk assessments were performed as required by 10 CFR 50.65 (a)(4), and were accurate and complete. When emergent work was performed, the inspectors verified that the plant risk was promptly reassessed and managed. The inspectors verified the appropriate use of the licensee's risk assessment tool and risk categories in accordance with Procedure SPP-7.1, On-Line Work Management, Revision 9, and Instruction 0-TI-DSM-000-007.1, Risk Assessment Guidelines, Revision 8. Documents reviewed are listed in the Attachment to this report.

- Removal of Motor-Driven AFW Pump 2A from service for maintenance and testing
- Removal of Component Cooling Pump 2A from service for maintenance and testing
- Emergent work on Diesel Generator 2A Air Start System and Control Room Annunciators while Safety Injection Pump 1A was removed from service and ongoing work in the switchyard
- Elevated offsite power risk due to system load and Charleston Industrial Load
- Removal of Unit 1 Turbine Driven AFW Pump from service for maintenance and testing
- Sequential maintenance on 500kV Supply Breakers to Inter-Tie Transformer
- Entry into Mode 2 with a portion of Unit 2 AFW Autostart Logic disabled

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

For the seven operability evaluations described in the Problem Evaluation Reports (PERs) listed below, the inspectors evaluated the technical adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred. The inspectors reviewed the UFSAR to verify that the system or component remained available to perform its intended function. In addition, the inspectors reviewed

compensatory measures implemented to verify that the compensatory measures worked as stated and the measures were adequately controlled. The inspectors also reviewed a sampling of PERs to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

- PER 116419, Response Time For Containment Spray Pump 2B Not Obtained
- PER 116760, Safety Injection Pump 2A Test Data Points Below UFSAR Pump Curve
- PER 119180, Containment Spray Pump 1A Inboard Bearing Housing Bolts Found Hand Tight
- PER 117646, Duct Tape Not Logged As Removed From Unit 2 Lower Containment
- PER 120990, Preventive Maintenance Not Performed On Class 1E Breakers
- PER 117635, Essential Raw Cooling Water (ERCW) Pump J-A Motor Power Consumption Greater Than Allowed By Emergency Diesel Generator Loading Calculation
- PER 121452, Low Sampler Flow On Auxiliary Building Radiation Monitor

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed the six post-maintenance tests listed below to verify that procedures and test activities ensured system operability and functional capability. The inspectors reviewed the licensee's test procedure to verify that the procedure adequately tested the safety functions that may have been affected by the maintenance activity, that the acceptance criteria in the procedure were consistent with information in the applicable licensing basis and/or design basis documents, and that the procedure had been properly reviewed and approved. The inspectors also witnessed the test or reviewed the test data, to verify that test results adequately demonstrated restoration of the affected safety functions. Documents reviewed are listed in the Attachment to this report.

- WO 03-009222-000, Rebuild Essential Raw Cooling Water Pump J-A
- WO 07-771295-000, Tighten Bolts On Containment Spray Pump 1A Inboard Bearing Housing
- WO 05-823620-000, Replace 480V Breaker For Component Cooling Pump 2A
- WO 07-773196-000, Replace Main Feed Water Pump Speed Controller
- WO 05-782353-000, Swap Breaker M0024, 480V Shutdown Board 1B2 Normal Feeder

- WO 06-778305-000, Calibrate U1 Terry Turbine Room High Temperature Steam Supply Isolation Temperature Switches

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities

a. Inspection Scope

Following the feedwater regulating valve failure and automatic trip of Unit 2 on January 23, 2007, the licensee remained in Mode 3 and entered a forced outage to repair feedwater regulating valves and perform other activities on plant secondary equipment. Also, following the feedwater control problems and manual trip of Unit 2 on March 13, 2007, the licensee remained in Mode 3 and entered a forced outage to repair the feedwater pump speed controller. In both of these outages, the licensee also inspected the Reactor Coolant System, (RCS) inside of lower containment. The inspectors observed containment entry controls and reviewed Procedure 0-SI-OPS-000-011.0, Containment Access Control During Modes 1-4, Revision 23, to ensure that all items which entered containment were removed so nothing would be left that could affect performance of the containment sump.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

For the five surveillance tests identified below, by witnessing testing and/or reviewing the test data, the inspectors verified that the SSCs involved in these tests satisfied the requirements described in the TS surveillance requirements, the UFSAR, applicable licensee procedures, and that the tests demonstrated that the SSCs were capable of performing their intended safety functions. Documents reviewed are listed in the Attachment to this report. The tests included the following:

- 1-SI-OPS-082-007.A, Electrical Power System Diesel Generator 1A-A, Revision 39
- 1-SI-IFT-099-90.8A, Reactor Trip Instrumentation Monthly Functional Test (SSPS) Train A, Revision 11
- 2-SI-SXP-063-201.A, Safety Injection Pump 2A-A Performance Test, Revision 11*
- 0-SI-OPS-068-137.0, RCS Leak Rate Determination (Unit 2), Revision 19**
- 0-SI-IFT-090-101.0, Functional Test of Auxiliary Building Vent Monitor 0-R-90-101B and Exhaust Vent Flow Monitor 0-F-30-174, Revision 10

*This procedure included inservice testing requirements.
**This procedure included an RCS leakage detection surveillance.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification described in Temporary Alteration Control Form (TACF),1-06-013-202, Remove Cover from Mechanical Close Lever in Diesel Generator 1A Supply Breaker and the associated 10 CFR 50.59 screening, and compared it against the UFSAR and TS to verify that the modification did not affect the operability or availability of any safety system. The inspectors walked down the TACF to ensure it was installed in accordance with the modification documents and reviewed post installation and removal testing to verify the actual impact on permanent systems was adequately verified by the tests. The inspectors also verified that permanent plant documents were updated to reflect the TACF to ensure that plant configuration control was maintained. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

a. Inspection Scope

The inspectors sampled licensee submittals for the two PIs listed below for the period from January 1, 2006 through December 31, 2006 for Unit 1 and Unit 2. To verify the accuracy of the PI data reported during that period, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Indicator Guideline," Revision 4, were used to verify the basis in reporting for each data element.

Cornerstone: Barrier Integrity

- Reactor Coolant System Activity
- Reactor Coolant System Leakage

The inspectors reviewed portions of the operator and chemistry logs to verify that the licensee had accurately determined the RCS activity and leakage during the previous four quarters for both units. The inspectors also observed the performance of

Procedure 0-SI-OPS-068-137.0, "RCS Water Inventory," which determines the amount of RCS leakage. Documents reviewed are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems

Daily Review

As required by Inspection Procedure 71152, Identification and Resolution of Problems, and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. This was accomplished by reviewing the description of each new PER and attending daily management review committee meetings.

4OA3 Event Followup

.1 (Closed) Licensee Event Report (LER) 05000328/2007-001-00, Reactor Trip Following Closure of Main Feedwater Valve Due to Control Air Line Failure

a. Inspection Scope

On January 23, 2007, Unit 2 tripped due to low level in the Number 2 Steam Generator when the main feedwater regulating valve failed closed. The inspectors reviewed the LER and PER 118464, Unit 2 Reactor Tripped on Steam Generator Loop 2 Feedwater Regulating Valve Failure, which documented this event in the licensee's corrective action program, to verify that the cause of the reactor trip was identified and that corrective actions were appropriate. The inspectors also verified that timely notifications were made in accordance with 10 CFR 50.72, that licensee staff properly implemented the appropriate plant procedures, and that plant equipment performed as required. Documents reviewed are listed in the Attachment to this report.

b. Findings

Introduction: A green self-revealing finding was identified for failure to properly follow installation procedures when implementing a modification to the Unit 2 feedwater regulating valves. Because of the inappropriate installation, air tubing detached from one valve and caused a trip.

Description: In December 2006, the licensee implemented Design Change Notice (DCN) D21984, which replaced the isolation solenoids on the Unit 2 main feedwater regulating valves. During installation of the new solenoids, installers routed the air tubing around a structural support such that thermal growth of the feedwater line caused excessive stress on one of the fittings. When this fitting pulled loose, air was vented

from the feedwater regulating valve and it failed closed. This resulted in a rapid decrease in steam generator level and a subsequent reactor trip. The licensee identified the cause of the event to be improper routing of air tubing to the valve due to inappropriate procedure use and adherence by workers, supervisors, and field engineers. During pre-job briefings, craft personnel questioned the clearance requirements for the air tubing and were told one and one half to two inches; however, craft personnel did not verify this against the installation procedure. Engineering personnel also did not verify or validate the clearance requirements in the installation procedure and specified the two-inch clearance.

The inspectors reviewed the root cause and installation instructions and determined that the licensee did not properly follow Procedure M&AI-24, "Installation, Inspection and Documentation of Instrumentation Features," Revision 20. The installation instructions for the DCN called for tubing to be field installed in accordance with Procedure M&AI-24. This procedure contained instructions to route tubing such that function and integrity were not affected by thermal movements and to provide a clearance of at least three inches from any structure subject to thermal displacement. Installation personnel failed to do this when they installed the tubing within two inches of a structural support. Failure to install the air tubing in accordance with specified installation instructions was identified as a performance deficiency and a finding.

Analysis: The finding was more than minor because it was associated with the design control attribute of the Initiating Events Cornerstone and resulted in an upset in plant stability by causing a reactor trip. While the finding resulted in an actual trip, the inspectors determined that it did not contribute to the likelihood of a loss of coolant accident, did not contribute to a loss of mitigation equipment functions, and did not increase the likelihood of a fire or flood. Thus, the finding was considered to be of very low safety significance (Green).

The cause of the finding was associated with the human performance and error prevention aspect of the human performance cross-cutting area because the involved craft, craft supervisor, and field engineer failed to verify and validate information by referring to installation procedures for the appropriate clearance.

Enforcement: No violations of regulatory requirements were identified since the tubing installation was not an important to safety activity. The finding was entered into the licensee's corrective action program as PER 118464 and is identified as Finding 05000328/2007002-02, Failure to Properly Follow Procedure when Modifying Feedwater Regulating Valves. The LER is closed.

.2 Unit 2 Reactor Trip

On March 13, 2007, following a Unit 2 manual reactor trip due to erratic operation of the Main Feed Pump 2A speed control, the inspectors evaluated plant status, mitigating actions, and the licensee's classification of the event, to enable the NRC to determine an appropriate NRC response. A bad relay inside the pump speed controller resulted in

the erratic control. The event was reported to the NRC as event notification (EN) 43233 and documented in the licensee corrective action program as PER 121526.

4OA5 Other Activities

Institute of Nuclear Power Operations (INPO) Plant Assessment Report Review

a. Inspection Scope

The inspectors reviewed the final report for the INPO plant assessment report of Sequoyah conducted in July 2006. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to identify if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

.1 Exit Meeting Summary

On April 4, 2007, the resident inspectors presented the inspection results to Mr. Randy Douet and other members of his staff, who acknowledged the findings. On April 17, 2007, the characterization of the finding was re-exited with Mr. Randy Douet. The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Annual Assessment Meeting Summary

Subsequent to the end of this inspection period, on April 10, 2007, the NRC's Chief of Reactor Projects Branch 6 and the Senior Resident Inspector assigned to the Sequoyah Nuclear Plant met with the Tennessee Valley Authority (TVA) to discuss the NRC's Reactor Oversight Process (ROP) and the NRC's annual assessment of Sequoyah's safety performance for the period of January 1 through December 31, 2006. The major topics addressed were: the NRC's assessment program, the results of the Sequoyah assessment, and NRC security activities. Attendees included Sequoyah site management, members of site staff, and corporate management. In addition, one member of the public attended.

This meeting was open to the public. The presentation material used for the discussion and a list of attendees are available from the NRC's document system (ADAMS) as accession number ML071100087 and ML071140292, respectively. ADAMS is accessible from the NRC Web site at http://www/nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee personnel

D. Bodine, Chemistry/Environmental Manager
D. Boone, Radiation Protection Manager
K. Clayton, Maintenance Manager
R. Douet, Site Vice President
R. Gladney, Systems Engineering Manager
K. Jones, Engineering Manager
Z. Kitts, Licensing Engineer
D. Kulisek, Plant Manager
G. Morris, Licensing and Industry Affairs Manager
M. Palmer, Operations Manager
K. Parker, Maintenance and Modifications Manager
J. Proffitt, (Acting) Site Licensing Supervisor
R. Reynolds, Site Security Manager
N. Thomas, Licensing Engineer
K. Wilkes, Emergency Preparedness Manager

NRC personnel:

R. Bernhard, Region II, Senior Reactor Analyst
B. Moroney, Project Manager, Office of Nuclear Reactor Regulation

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000327/2007002-01	URI	Heat Sink Issues (Section 1R07)

Opened and Closed

05000328/2007002-02	NCV	Failure to Properly Follow Procedure When Modifying Feedwater Regulating Valves (Section 4OA3)

Closed

05000328/2007-001-00	LER	Reactor Trip Following Closure of Main Feedwater Valve Due to Control Air Line Failure (Section 4OA3)

Attachment

LIST OF DOCUMENTS REVIEWED

Section R04: Equipment Alignment

1,2-47W848-1, Compressed Air System Flow Diagram, Revision 47
1,2-47W810-1, Residual Heat Removal System Flow Diagram, Revision 49
1-47W809-1, Chemical and Volume Control System Flow Control Diagram, Revision 72
1-47W811-1, Safety Injection System Flow Control Diagram, Revision 70
AOP-R.02, Shutdown LOCA, Revision 9
AOP-R.03, RHR System Malfunction, Revision 16

Section R05: Fire Protection

Fire Drill Critique Report, January 11, 2007
0-PI-FPU-000-900.Q, Periodic Fire Brigade Training, Revision 4
Performance of 0-PI-FPU-000-900.Q for Each Calendar Quarter of 2006.
Nuclear Plant Fire Protection Functional Responsibilities, Administrative Controls and Quality Assurance (FRACQA), dated June 20, 1977
Audit Report No. SSA0501, Nuclear Assurance Fire Protection and Loss Prevention Program (Biennial/Triennial) Audit

Section R11: Licensed Operator Requalification

AOP-R.01, Steam Generator Tube Leak, Revision 23
AOP-S.04, Condensate or Heater Drains Malfunction, Revision 13
EPIP-1, Emergency Plan Classification Matrix, Revision 39

Section R12: Maintenance Rule Implementation

1,2-47W867-2, Mechanical Air Conditioning Control Diagram, Revision 12
CDE 2194, Increase in Control Room Temperature Due to 0-TT-311-176
SQN-SQS2-0164, Evaluation of Performance Criteria for 10CFR50.65, The Maintenance Rule, Revision 0
SPP-6.6, Maintenance Rule Performance Monitoring, Trending and Reporting, Revision 9
TI-4, Maintenance Rule Performance Indicator Monitoring, Trending, and Reporting, Revision 20
System Health Reports, 2006, Standby Diesel Generators
Functional Evaluation 41528, Change in Droop Knob Settings for EDG 1B-B
Common Cause Evaluation for EDG 2B-B Handswitch Failure

Section R13: Maintenance Risk Assessments and Emergent Work Evaluation

Sentinel Printout for January 8, 2007 to January 28, 2007
Maintenance Shift Supervisor Daily Schedule 24-hour Look-ahead of 16 January, 2007
AOP-M.03, Loss of Component Cooling Water, Revision 11
Sentinel Printout for January 22, 2007 to February 9, 2007
Sentinel Printout for February 19 to March 11, 2007

Maintenance Shift Supervisor Daily Schedule 24-hour Look-ahead of 23 February, 2007

Section R15: Operability Evaluations

NEDP-22, Functional Evaluations, Revision 4
NRC Information Notice 97-90, Use of Nonconservative Acceptance Criteria in Safety-Related Pump surveillance Tests
UFSAR Section 6.3.2.2
Functional Evaluation 41745, Safety Injection Pump Flow Test Results dated December 15, 2006
0-SI-OPS-000-011.0, Containment Access Control During Modes 1-4, Revision 22, Completed December 25, 2006
WO 07-773182-000, Repair/Replace Flow Switch 0-FIS-90-101, Calibrate and Return to Service
SQN ODCM 1/2.1.2 Radioactive Gaseous Effluent Monitoring Instrumentation, Revision 52
UFSAR Section 11.4.2.2, Process and Effluent Gas Monitors
Setpoint and Scaling Document 0-F-90-101, Revision 4

Section R19: Post Maintenance Testing

0-SI-SXP-067-201.J, Essential Raw Cooling Water Pump J-A Performance Test, Revision 10
0-TI-SXI-000-200.P, ASME OM Code Pump Testing, Revision 0
1-SI-SXP-072-201.A, Containment Spray Pump 1A-A Performance Test, Revision 14
2-PI-ICC-046-020.0, Calibration of Main Feedwater Pump Turbine 2A and 2B Speed Control, Revision 9
0-MI-EBR-000-000.0, Westinghouse Type DS Air Drawout Circuit Breaker Removal and Installation Instructions, Revision 4
1-SO-201-1, 480V Shutdown Boards, Revision 16

Section R22: Surveillance Testing

SPP-9.1, ASME Section XI, Revision 7
2-SI-SFT-063-001.0, Safety Injection System Hot Leg and Cold Leg Injection Flow Test, Revision 12
ASME OM Code-2001, Subsection ISTB, Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants

Section R23: Temporary Plant Modifications

PER 104463, Handswitch 1-HS-57-46C Could not be Placed in Closed Position
AOP-C.04, Shutdown from Auxiliary Control Room, Revision 12
1,2-45N765-2, Wiring Diagram 6900V Shutdown Aux Power Schematic Diagram Sheet 2, Revision 18

Section 4OA1: Performance Indicator Verification

NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 4
Sequoyah Nuclear Chemistry Department Sample Reports for 2006
0-TI-CEM-000-001.3, Primary Chemistry Specifications, Appendix A, RCS Specific Activity, Revision 35
PER 85864, DEI Data Incorrectly Logged
0-SI-OPS-068-137.0, Reactor Coolant System Water Inventory, Revision 19

Section 4OA3: Event Followup

D21984, Replace FW Control Valve Solenoids with Redundant Solenoid Assemblies
WO 05-782365-001, Implement Mechanical Portion of DCN D21984